

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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Application of :
Akihiro IINO et al. :
Serial No. 09/290,046 : Group Art Unit - 2834
Filed: April 12, 1999 : Examiner: Mark O. Budd
For: ULTRASONIC MOTOR AND :
ELECTRONIC APPARATUS :
EQUIPPED WITH ULTRASONIC :
MOTOR : Docket No. S004-3645

#13/Reply
Brief
Hawkins
10/2/01

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COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, DC 20231

REPLY BRIEF

S I R:

Pursuant to 37 C.F.R. §1.193(b)(1), appellants
present this brief in reply to the Examiner's Answer dated
July 12, 2001.

In the brief on appeal filed June 13, 2001,
appellants presented arguments addressing the two grounds of
rejection of claims 1-4, 22-32 and 48-51 under 35 U.S.C.
§103(a) raised by the Examiner in the final Office Action. In
responding to appellants' arguments, the Examiner has raised
new points of argument with respect to the prior art
rejections of the claims and the statement concerning related

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appeals and interferences. These new points of arguments are addressed below.

At page 2 of his Answer, the Examiner states that the brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal. Appellants respectfully disagree.

Appellants respectfully submit that part (2) of the brief (pg. 2) clearly sets forth the statement concerning related appeals and interferences as required by 37 C.F.R. §1.192(b)(2).

With respect to the rejection of claims 1-4, 22-32 and 48-51, it is the Examiner's position that Kataoka and Salomon et al. teach drive circuits having a detecting polarized portion for detecting a drive signal having a drive frequency of the detecting polarized portion, the detecting polarized portion being disposed at a portion of the piezoelectric vibrating member which undergoes maximum deformation in at least one vibration mode of oscillation of the piezoelectric vibrating member, as recited in independent claim 1. Appellants respectfully disagree.

While Kataoka and Salomon et al. disclose detecting electrodes disposed at an antinode of standing waves (Kataoka)

and at an antinode of a travelling wave (Salomon et al.), the function of the detecting electrodes in these references is different from the function of the detecting polarized portion recited in independent claim 1. More specifically, in Kataoka, the detecting electrodes detect the amplitude of two standing waves and a time-phase difference between the two standing waves (see abstract). In Salomon et al., the detecting electrodes detect an amplitude and a time-phase difference between sensor voltage signals.

In contrast, independent claim 1 requires a detecting polarized portion for detecting a drive signal having a drive frequency of the detecting polarized portion. Nowhere in Kataoka and Salomon et al. is it disclosed or suggested that any of the detecting electrodes may be used to detect a drive signal having a drive frequency of the detecting electrodes. The claimed function of detecting a drive signal having a drive frequency of the detecting polarized portion must be given patentable weight. As stated by the Board of Patent Appeals and Interferences in Ex parte Bylund, 217 USPQ 492, 498 (BPAI 1981):

Although we have sustained several of the Examiner's rejections we here wish to specifically note that contrary to the Examiner's assertions, functional language in the claims must be given full weight and may not be disregarded in evaluating the patentability of the subject matter defined employing such functional language. However, the applicant must establish that

what is taught by the reference does not inherently function in the manner required by the claim.

Here, independent claim 1 explicitly recites that the detecting polarized portion detects a drive signal having a drive frequency of the detecting polarized portion. This function of the detecting polarized portion is entirely absent from Kataoka and Salomon et al., and the references provide no motivation, suggestion, or structure for utilizing any of the detecting electrodes for the purpose of detecting a drive signal having a drive frequency of the detecting electrodes. Thus the references neither disclose the claimed detecting function (as erroneously stated in the rejection) nor suggest modification to attain the claimed detecting function.

Independent claims 2, 3 and 48 distinguish from Kataoka and Salomon et al. for the same reason stated above for independent claim 1. More specifically, each of independent claims 2 and 3 requires a detecting polarized portion for detecting a drive signal having a drive frequency of the detecting polarized portion, and independent claim 48 requires a driving circuit for applying an exciting signal to the piezoelectric vibrating member and a detecting electrode for detecting the exciting signal. Again, this function of the detecting polarized portion and the detecting electrode is entirely absent from Kataoka and Salomon et al.

With respect to the rejection of claims 6-14 and 33-47, it is the Examiner's position in the Examiner's Answer that Okazaki et al. teach all of the structure and corresponding functions recited in these claims except for the use of a self-oscillating feed back drive circuit. Appellants respectfully disagree.

Okazaki discloses a vibration actuator for generating a driving force by generating plural vibrations in an elastic member. As recognized by the Examiner, in addition to not using a self-oscillating feed back drive circuit, Okazaki clearly does not disclose or suggest a detecting polarized portion for detecting a drive signal having a drive frequency of the detecting polarized portion, as recited in independent claim 6, and a detecting electrode for detecting a drive signal having a drive frequency of the detecting electrode, as recited in independent claims 11 and 12.

The Examiner has further relied on the secondary references to Shirasaki and Ohtsuchi for their disclosure of feedback circuitry utilizing polarized piezoelectric detecting electrodes. In view of this disclosure, the Examiner has taken the position that it would have been obvious to one of ordinary skill in the art to provide Okazaki with feedback circuitry utilizing polarized piezoelectric detecting electrodes, as taught by Shirasaki and Ohtsuchi. Appellants

vigorously disagree with the Examiner's interpretation of the claimed invention and with the combination of the prior art references relied upon by the Examiner in his statement of rejection.

The secondary reference to Shirasaki discloses a vibration driven motor having a vibration member and detection members for detecting a vibration state of the vibration member (Figs. 1A-1B). Ohtsuchi discloses an ultrasonic motor having a vibrating body and vibration detection electrodes for detecting vibration amplitudes of the vibrating body. Thus, while Shirasaki and Ohtsuchi disclose vibration driven motors and ultrasonic motors which utilize detection members or electrodes for detecting an amplitude of vibration of a vibrating body to improve the driving efficiency and stability of the vibration driven or ultrasonic motor, these references do not disclose or suggest the specific structure and corresponding function of the ultrasonic motor required by independent claims 6, 11 and 12. More specifically, Shirasaki and Ohtsuchi do not disclose or suggest a detecting polarized portion for detecting a drive signal having a drive frequency of the detecting polarized portion, as recited in independent claim 6. Likewise, Shirasaki and Ohtsuchi do not disclose or suggest a detecting electrode for detecting a drive signal having a drive frequency of the detecting electrode, as

recited in independent claims 11 and 12. Again, in assessing patentability, all of the claimed functions recited in claims 6, 11 and 12 must be given patentable weight.

In light of the arguments and showing made herein and the arguments presented in the main brief, appellants respectfully submit that the obviousness rejections of claims 1-4, 6-14, 22-32 and 35-51 are in error and should not be sustained.

Respectfully submitted,

ADAMS & WILKS
Attorneys for Appellants

By: 

Bruce L. Adams
Reg. No. 25,386

50 Broadway
31st Floor
New York, NY 10004
(212) 809-3700

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Commissioner of Patents & Trademarks, Washington, D.C. 20231 on the date indicated below.


Bruce L. Adams

Attorney Name


Signature

SEPTEMBER 18, 2001

Date

ADAMS & WILKS

ATTORNEYS AND COUNSELORS AT LAW
50 BROADWAY
31st FLOOR
NEW YORK, NEW YORK 10004

BRUCE L. ADAMS
VAN C. WILKS

JOHN R. BENEFIEL
PAUL R. HOFFMAN
TAKESHI NISHIDA
FRANCO S. DE LIGUORI

* NOT ADMITTED IN NEW YORK
* REGISTERED PATENT AGENT

RIGGS T. STEWART
(1924-1993)

TELEPHONE
(212) 809-3700

FACSIMILE
(212) 809-3704

September 18, 2001

COMMISSIONER FOR PATENTS AND TRADEMARKS
Washington, DC 20231

Re: U.S. Patent Application
of Akihiro IINO et al.
Serial No. 09/290,046
Docket No. S004-3645

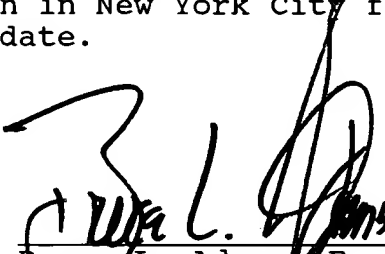
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STATEMENT UNDER 37 CFR 1.6(e)

SIR:

Pursuant to 37 CFR 1.6(e) and the Notice of U.S. Postal Service Interruptions posted on the USPTO website as of September 18, 2001, the undersigned states that the attached correspondence would have been filed at the USPTO on September 12, 2001 if it were not for the interruption and emergency in the U.S. Postal Service in the borough of Manhattan in New York City from September 11, 2001 to the present date.

Dated: September 18, 2001


Bruce L. Adams, Esq.
Reg. No. 25,386

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